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# U.S. DEPARTMENT OF AGRICULTURE

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## Office of Information



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### X U. S. SCIENCE AIDS COFFEE PRODUCTION Y

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1. A Guatemalan girl picking coffee. Women and children do most of the coffee harvesting. The pickers try to select the ripe red cherries, leaving the green immature fruit on the tree for later harvest. In Guatemala many of the coffee pickers are Indians who live on small subsistence farms in the highlands and migrate to the coffee "fincas" or farms in the harvest season to earn cash. They are paid by the amount they pick. OFAR-G-558

More coffee for the United States and more income for Central America. These two developments are expected to come out of the coffee improvement work now going on in Central American countries, with the United States Department of Agriculture cooperating.

The improvement project is now in its fourth year. Researchers feel that already they have uncovered enough new data that, when put to full use, coffee planters in Central America can double or even treble their yields. The project is going ahead on a long-range basis, and researchers are



2. Interesting patterns appear on the concrete drying floors as laborers move the coffee beans about so that they will dry evenly in the sun. Before the beans are spread out to dry they have been put through beating machines to remove skins and pulp and have been washed in large quantities of water to remove a sticky "honey" that adheres to the bean. OFAR-G-350



3. An American visitor to the Guatemalan coffee nursery notes the wide variation in yield between coffee trees. (She's Miss Janie Cowgill, 18, Glenn Dale, Md., sister of the U. S. scientist in charge of the coffee improvement work.) Guatemalan coffee trees yield anywhere from 1/10th of a pound (left basket) to 14 pounds per year (right basket). The average is about one pound per tree per year. Just as the U. S. has improved crops and increased yields, Guatemala is doing likewise with coffee. OFAR-G-590

confident that many more facts about best ways to grow the results pertain specifically to Central American countries for whatever use can be made of them.

The cooperative work is centered in Guatemala, to shoulder with agricultural scientists of each of the countries of agricultural improvement in Central America in what scale, the program resembles the much-discussed Point

The researchers are improving coffee growing in the fruit growers of the United States. Selection of beans is one of the main objectives. Though the highland coffees of Central America are done to improve their yield, says Dr. William H. Cowgill, who works in Guatemala. He says further:

"Coffee growing here is at about the same stage as in the United States. It started going around scattering seeds. The United States is now selecting superior trees and propagating them. Coffee

Significantly, Dr. Cowgill's right-hand assistant in Guatemala has studied fruit growing at Wenatchee, Washington.

One big problem facing Central American coffee growers is that 30 percent of the trees give about 70 percent of the yield. The practice should be to cull the yielding trees is needed. The practice should be to cull the American farmers get rid of their "boarder" cows and cull the yield records preparatory to beginning such culling. Culling all over the world, selecting the best ones, and getting

Also needed by Central American coffee growers is a method helpful in El Salvador in controlling the serious root disease preventing erosion. A method has been developed in Colombia by stripping coffee leaves from the trees at a certain time. Coffee trees can feasibly be planted per acre. Also, a method to maintain soil fertility. In some areas, growers may be able to grow coffee in shade.

An interesting sight in Guatemala is the high-altitude away a volcano smokes lazily, while nearby the Indian fields are 37 varieties of coffee trees, gathered from hundreds of individual trees is numbered and its yield propagated in expectation that from them will come new

Dr. Cowgill has found Guatemalan yields to vary from one pound per year. The average is around one pound. The research is to build up the average to around 3 to 5 pounds of coffee per tree per year. A disease can add to this average. Although suggested, a long-range promise is highly encouraging.

The prospect of greater efficiency in Central America as well as to the coffee growers. The success of this work by the United States extends its technical assistance to

coffee in Central America will come to light. Although methods are being made available to other coffee-producing

and Costa Rica. USDA scientists are working shoulder to shoulder with these countries. The work is part of a broader program. The United States is giving technical assistance. On a smaller scale, technical aid to underdeveloped countries.

Central America by applying techniques similar to those used by scientists and determination of best cultural methods are the areas that are widely recognized for their flavor, much can be learned. A plant scientist who heads the coffee investigation

growing was in the United States when Johnny Appleseed. The coffee industry didn't get anywhere until the growers started to improve it. There's no reason why it too can't be improved."

Fernando Fernandez, a Guatemalan agricultural expert who

researchers say, is that many trees are loafers. About 10 percent of the coffee trees are loafers. Culling out of loafer trees and replacing them with high-yielding trees is a constant culling that goes on in U. S. agriculture as well. Many coffee growers are cooperating by keeping their trees healthy. In turn, they have been bringing in coffee trees from other growers to supply growers with superior stock for replacement.

Cultural methods. A heavy straw mulch has been found to be effective in holding moisture through the dry season, and in preventing the costly Ojo de Gallo disease can be controlled. In Guatemala, researchers have learned that more coffee trees probably can be rotated with legume crops to help improve the soil and to dispense with the time-honored practice of growing

coffee improvement station at "Finca Chocoma." Not far from the station on steep mountain slopes. In the Chocoma research station, eventually there will be more. Each of the trees is being watched. The best -- or "noble" -- trees are being selected for new lines.

of a pound to as much as 14 pounds of coffee per tree. Now that planting of superior strains alone can bring in more coffee. Improved cultural practices and better control of diseases cannot be put into general practice overnight, the

production comes as good news to American housewives. It indicates the many possibilities for mutual benefit as well as for coffee.



4. Pollinating a coffee flower to produce a hybrid that may incorporate best features of both parent trees. The cooperative agricultural station in Guatemala has collected coffee varieties from all over the world to assist cross-breeding work such as this. Dr. William H. Cowgill, 36-year-old USDA coffee specialist of the Office of Foreign Agricultural Relations, directs the coffee improvement work at the Guatemala station. OFAR-G-592



5. A Guatemalan technician carrying out a grafting experiment. Results will help point the way to methods coffee planters should use in improving their production. He is grafting a scion from a high-yielding tree onto ordinary rootstock, and it is expected the tree growing out of this combination will retain the good features of the parent and yield heavily. OFAR-G-600



6. Another experiment on how to propagate high-yielding coffee trees is through use of cuttings. Selected twigs, or small branches, are cut from superior trees and, through special handling are caused to take root in the nursery, thereby becoming young individual trees. When old enough they are transplanted to the coffee plantations. It is expected that they will retain the good features of the parent. OFAR-G-597



8. Coffee tree, one of a group selected in El Salvador for high yielding characteristics, is inspected by Thomas Villanova (left) and Ford M. Milam. Senor Villanova is in charge of coffee improvement work at the cooperative agricultural station. Mr. Milam, of the U. S. Department of Agriculture, Office of Foreign Agricultural Relations is head agronomist at the station in El Salvador. OFAR ES-461



7. Not only better coffee trees but better ways of growing coffee are objectives of the cooperative improvement work. Here is an experiment in coffee-legume rotation in Guatemala. "Hedgerows" of coffee trees (darker strips) are interspersed with soil protecting and improving legume crops (lighter strips). The hedgerows are kept trimmed to desirable size. As the coffee trees near the end of their most productive life, the legume strips will be planted to new trees. The old trees, in turn, will be torn up and planted to soil-building legumes. This rotation plan also is unusual in that it attempts to do away with customary shade and increases the number of trees per acre. OFAR-G-602



9. It's an old saying that coffee is only as good as it tastes. Here Sr. Aldo Cabella is a professional coffee taster in the Guatemalan Coffee Bureau. By sipping the various samples of export grade coffee, he is able to classify them according to taste, aroma, and quality of processing. The coffee improvement work going on at the cooperative agricultural stations is designed to improve not only quantity but also, through introduction of new strains, quality as well. OFAR-G-487